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NAVIGATION SYSTEM WITH USER INTERFACE

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This application claims benefit of Provisional Appl. 60/084,227 and
60/084,228 both filed May 5, 1998.

BACKGROUND OF THE INVENTION

The present invention relates generally to in-vehicle navigation or
5 "route-guidance" systems and more particularly to an improved graphical user
interface for such systems.

In-vehicle navigation systems generally comprise motion and position-
determining devices, such as GPS receivers, accelerometers, etc. which
determine the current position of a vehicle relative to a database of roads. A
10 graphical user interface, typically including a display and user input device,
enables the user to select a destination from the database of roads. The
display then provides turn-by-turn instructions to the driver guiding the driver
to the desired destination from the current position.

In some known navigation systems, the graphical user interface
15 provides a hierarchical menu for selecting a desired destination. For example,
the driver initially selects from several groups of destinations such as:
"intersections," "points of interest," "cities," "street address," etc. After
selecting one of the groups of destinations, the user may be provided with
another plurality of subgroups of destinations. For example, after selecting
20 "points of interest," the driver may then select from among hotels, grocery
stores, theaters, etc.

The known navigation system provides text-based menus. The display
typically provided in the navigation system is typically three to five inches
diagonally; therefore, a graphical user interface which is efficient in both
25 communicating information and receiving input from the driver is desirable.

SUMMARY OF THE INVENTION

The present invention provides a vehicle navigation system having a
display including a plurality of icons, each associated with a plurality of
30 potential destinations in a database or other options. A user input device
selectively activates one of the plurality of icons. When activated, the